

THAT WHICH IS CLAIMED:

1. An electrical connector insert, comprising:
at least one housing, wherein each housing comprises:
5 a plurality of openings to receive at least one connector portion of at least one component; and
a plurality of conductive contacts extending at least partially within said at least one housing, wherein each conductive contact is associated with an opening;
10 at least one flat wire segment, wherein each flat wire segment comprises a plurality of conductive traces; and
a plurality of connection elements to connect the plurality of conductive contacts of said housing to the plurality of conductive traces of said at least one flat wire segment.
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2. The electrical connector insert according to claim 1, wherein the plurality of conductive contacts of said at least one housing comprises a plurality of at least one of conductive pins and conductive sockets.
- 20 3. The electrical connector insert according to claim 1, wherein said plurality of connection elements comprise wire segments extending from the plurality of conductive contacts to the plurality of conductive traces of said at least one flat wire segment.
- 25 4. The electrical connector insert according to claim 1, wherein said plurality of conductive traces comprise at least one connection via, and wherein said plurality of connection elements connect the plurality of conductive contacts of said housing to the at least one connection via of the conductive traces.
- 30 5. The electrical connector insert according to claim 1, wherein said plurality of conductive contacts comprise said plurality of connection elements.

6. The electrical connector insert according to claim 1, wherein said plurality of connection elements comprise a plurality of solder joints to connect said plurality of connection elements to said at least one flat wire segment.

5 7. The electrical connector insert according to claim 1, wherein said at least one housing further comprises a support element to support at least a portion of said at least one flat wire segment.

8. The electrical connector insert according to claim 1:
10 wherein said at least one housing defines an aperture to receive a portion of the at least one flat wire segment,
wherein said at least one flat wire segment comprises first and second major surfaces with conductive traces defined on the first and second major surfaces, and
wherein said connection elements connect said plurality of conductive
15 contacts to said plurality of conductive traces when the portion of said at least one flat wire segment is positioned within the aperture in said at least one housing.

9. The electrical connector insert according to claim 1, wherein said at least one housing comprises a plurality of housings and wherein the plurality of
20 housings are sized and shaped to cooperate with each other when the plurality of housing are positioned adjacent one another.

10. The electrical connector insert according to claim 1, wherein said at least one housing further comprises at least one wafer defining said plurality of
25 openings.

11. An electrical connector apparatus, comprising:
a connector insert shell, wherein said connector insert shell defines at least one opening that extends through opposite sides of said connector insert shell; and
at least one electrical connector insert positioned within the at least one opening defined by said connector insert shell, wherein said at least one electrical connector insert comprises:
at least one housing, wherein each housing comprises:
a plurality of openings to receive at least one connector portion of at least one component; and
a plurality of conductive contacts, wherein each conductive contact is associated with an opening;
at least one flat wire segment comprising a plurality of conductive traces; and
a plurality of connection elements to connect the plurality of conductive contacts of said housing to the plurality of conductive traces of said at least one flat wire segment.
12. The electrical connector apparatus according to claim 11, wherein the plurality of conductive contacts of said at least one electrical connector insert comprises a plurality of at least one of conductive pins and conductive sockets.
13. The electrical connector apparatus according to claim 11, wherein the plurality of connection elements of said at least one electrical connector insert comprise wire segments extending from the plurality of conductive contacts to the plurality of conductive traces of the at least one flat wire segment.
14. The electrical connector apparatus according to claim 11, wherein the plurality of conductive traces of said at least one electrical connector insert comprise at least one connection via, and wherein the plurality of connection elements connect the plurality of conductive contacts of the housing to the at least one connection via of the conductive traces.

15. The electrical connector apparatus according to claim 11, wherein the plurality of conductive contacts of said at least one electrical connector insert comprise the plurality of connection elements of said at least one electrical connector insert.

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16. The electrical connector apparatus according to claim 11, wherein the plurality of connection elements of said at least one electrical connector insert comprise a plurality of solder joints to connect the plurality of connection elements to the at least one flat wire segment.

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17. The electrical connector apparatus according to claim 11, wherein the housing of said at least one electrical connector insert further comprises a support element to support at least a portion of the at least one flat wire segment of said at least one electrical connector insert.

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18. The electrical connector apparatus according to claim 11:
wherein the at least one housing of said at least one electrical connector insert defines an aperture to receive a portion of the at least one flat wire segment,
wherein the at least one flat wire segment of said at least one electrical
connector insert comprises first and second major surfaces with conductive traces
defined on the first and second major surfaces, and
wherein the connection elements of said at least one electrical connector insert connect the plurality of conductive contacts to the plurality of conductive traces when the portion of the at least one flat wire segment is positioned within the aperture in the
housing.

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19. The electrical connector apparatus according to claim 11, wherein the at least one housing of said at least one electrical connector insert comprises a plurality of housings and wherein the plurality of housings are sized and shaped to cooperate with each other to fit within the at least one opening defined by said connector insert shell.

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20. The electrical connector apparatus according to claim 11, wherein the at least one housing of said at least one electrical connector insert further comprises at least one wafer defining the plurality of openings.

5 21. A method for fabricating an electrical connector insert, comprising:
defining a plurality of openings in at least one housing to receive at least one connector portion of at least one component;

placing a plurality of conductive contacts at least partially within each of the plurality of openings; and

10 connecting a plurality of conductive traces defined in at least one flat wire segment to the plurality of conductive contacts.

22. The method according to claim 21, wherein connecting the plurality of conductive traces to the plurality of conductive contacts comprises attaching a
15 plurality of connection elements between the plurality of conductive contacts of the housing and the plurality of conductive traces.

23. The method according to claim 21, wherein connecting the plurality of conductive traces to the plurality of conductive contacts comprises soldering the
20 plurality of conductive contacts to connection vias within the plurality of conductive traces.

24. The method according to claim 21, further comprising arranging a plurality of housings adjacent to one another.

25 25. The method according to claim 21, further comprising supporting the at least one flat wire segment connected to the plurality of conductive contacts with a support element extending from the at least one housing.

30 26. The method according to claim 21, wherein defining a plurality of openings in at least one housing comprises defining a plurality of openings in a plurality of wafers and positioning the wafers adjacent one another.